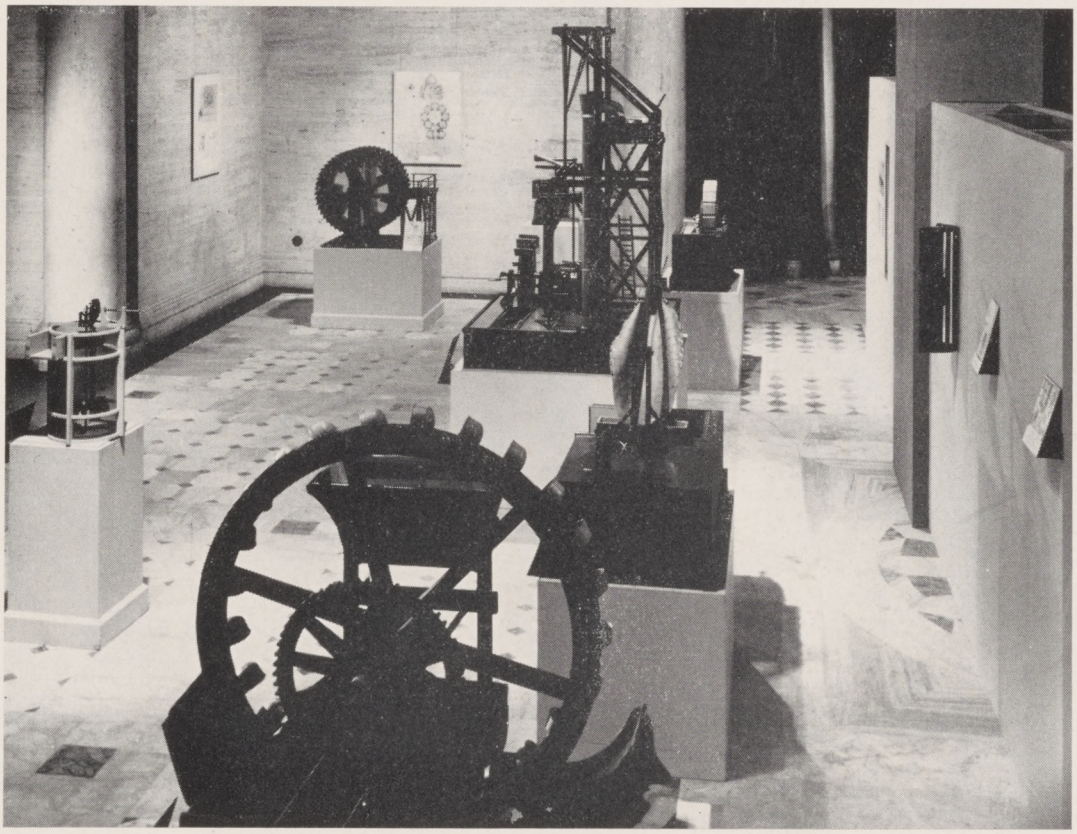
LOS ANGELES COUNTY MUSEUM
QUARTERLY

Autumn, 1949
Vol. 7, No. 4



Leonardo's Inventions: Models in the Main Foyer

Photograph by Francis O'Neill

LOS ANGELES COUNTY MUSEUM

EXPOSITION PARK · LOS ANGELES 7 · CALIFORNIA

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NEWS of the MUSEUM

ATTENDANCE—

Attendance for the fiscal year ending June 30, 1949, was 1,016,378. This is the largest recorded attendance in the 39-year history of the Museum. Chief factors contributing to this record were: the Exhibition of Masterpieces from the Berlin Museums, and the increasing popularity of the Museum's special programs and services, as well as growing interest in the permanent collections and the other temporary exhibitions.

BOARD OF GOVERNORS—

Four members of the Board of Governors whose four-year term had expired were reappointed for another term on July 1st, by the Board of Supervisors:

Mrs. Fred H. Bixby
Mrs. Rudolph Liebig
Mr. William H. Schuchardt
Mr. William T. Sesnon Jr.

ART

FIRST CHIEF CURATOR OF ART—

On July 1st, the Museum's first Chief Curator of Art, Dr. Patrick Joseph Kelleher, arrived at his post. He occupies Dr. Valentiner's former office. Dr. Valentiner, now Consultant in Art, now spends Tuesdays and Thursdays at the Museum.

LEONARDO DA VINCI EXHIBITION—

The Leonardo Exhibition closed on July 17th, after 116,005 people had come to see it. The paintings and drawings have been returned to their owners. The models of Leonardo's inventions are going on tour to several other museums.

CENTENNIAL OF ART EXHIBITION—

After fifteen months of difficult negotiations, the contract between the Museum and the California Centennials Commission was finally approved by the latter, and legally recorded before the June 30th deadline. The Museum received State funds for the project. The Los Angeles County Board of Supervisors provided $5,175 of County funds for purchase prizes, for the Museum's permanent collections. The exhibition is in two parts:

I. Historical Section: Early life in California, especially the period of the Gold Rush and the generation following. Collected by the Chief Curator of History, Arthur Woodward.

II. Contemporary Art of California: Sculpture, oil painting, water color, prints and drawings selected by an out-of-state jury consisting of—

Dr. Andrew C. Ritchie, formerly Director of the Albright Art Gallery, in Buffalo, and now Director of Painting and Sculpture at the Museum of Modern Art, New York.

Dr. Lester D. Longman, Chairman of the Art Department at the State University of Iowa.

Perry Rathbone, Director of the St. Louis City Art Museum.

An extensive Exhibition Catalogue has been published, and also a brochure listing the accepted works and the prize winners. The exhibition dates are September 30th through November 13th.

This exhibition is in lieu of the Museum's regular Exhibition of Artists of Los Angeles and Vicinity, which will be resumed in the spring of 1950.

HISTORY

UNESCO EXHIBIT—

The Museum's UNESCO Committee, appointed in the spring of 1948, has been planning and preparing for over a year a special exhibition entitled: "Man and His Prejudices." It is hoped that this exhibition can be completed late in the present year.

SCIENCE

Excavations at McKittrick—

During July and August, several paleontological members of the Science Division excavated in the tar deposits at McKittrick (about 40 miles west of Bakersfield) in collaboration with the Kern County Museum and the California Institute of Technology. A large quantity of Late Ice Age (Pleistocene) fossil material has been recovered from the excavations, with drag line equipment facilitating progress of the digging. A full report of the expedition is promised in a forthcoming issue of the *Quarterly*.

Hancock Park—

On July 1st, Hancock Park came under complete jurisdiction of the Museum (heretofore the County Department of Parks and Recreation had been responsible for upkeep of the grounds). The newly created post of Head Caretaker is held by Eugene V. Lipp, who has two guards and four Park Maintenance men to supervise. Especially in the number of guards, Hancock Park is quite understaffed.

The Los Angeles County Board of Supervisors generously provided $103,000 in the current 1949-50 Museum budget, to execute the second stage in the development of Rancho La Brea, in Hancock Park, into a unique outdoor exhibit of Late Ice Age animals and plants. An article in the *Quarterly* on these developments, by the Chief Curator of Science, Dr. Chester Stock, is promised.

Meanwhile it is announced that the new edition of the *Rancho La Brea Handbook,* by Dr. Stock, has been published and is available at the Museum Bookshop for 50c. It contains a reproduction of the master-plan for Hancock Park.

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Fire Safety Improvements—

A $100,000 contract for Fire Safety improvements in the Museum building was approved in late-June by the Board of Supervisors, just before the close of the 1948-49 fiscal year. It called for completion of the work within 100 days, and work has been under way throughout the building. Approximately one-half of the fire and panic hazards to which the Board of Governors' Building Committee objected will have been removed; many of the remainder will be dealt with on another contract utilizing $81,000 provided for this purpose in the Museum's current 1949-50 budget.

The Museum is hoping to secure approval for the construction of a proposed fire safety tower at the west end of the building, incorporating safety features beyond the minimum city ordinance requirements. At present, authorization has been secured for a tower embodying only the minimum safety requirements. In the event of a panic during maximum visitor load, this tower would endanger human life. Moreover, when the Museum building is enlarged through the addition of an auditorium, in accordance with the Museum's master-plan, the fire safety tower with minimum safety features will have to be replaced by the type of tower advocated by the Board of Governors' Building Committee. In the end, taxpayers' money would be saved if the preferred tower were constructed at the start.

Museum Guards—

Through the generosity of Mr. Keith Spalding, the Museum has acquired metal lockers sufficient for each of the Museum guards, and a special room has been established for them. Visitors will recall that before World War II the Museum guards were in uniform; but during and since the War this was necessarily discontinued. Very shortly, all the Museum guards will be seen wearing midnight-blue uniforms and black shoes, white shirts and black ties. Each guard will wear an official badge, and each will be deputized.

Open-Air Gallery—

Because of the shortage of suitable storage space, the former open-air gallery on the north side of the Second Floor has been used for some years as a storage area. It is now being systematically cleared. Surplus material without value is being removed from the premises; and outmoded cases or other equipment bearing County registration numbers are being taken apart, under approval of the County Auditor's office, for later re-use of certain materials such as plate-glass.

When cleared completely, the gallery will once more be devoted to contemporary sculpture, and will also provide an area where Museum visitors, both young and old, may sit down to eat sandwiches which they may bring with them, and to enjoy soft drinks which it is hoped to offer for sale there. A similar project is also under consideration for the roof area immediately north of the Main Foyer, on the First Floor. Here a trellis would have to be constructed, and a protecting canvas would have to be hung on overhead wires. These arrangements would partially compensate for the lack of a Museum cafeteria. But no funds are available at present.

Museum Bookshop and Christmas Cards—

Sales at the Museum Bookshop continue to average more than $1,000 per month. The public is reacting very favorably to the kinds of merchandise stocked for History, Science and Art. Colored postcards and 11 x 14-inch color prints are in high demand. Two new Museum publications have just appeared: a *Habitat Groups* handbook devoted to American Mammals, by Melville N. Lincoln, and a new edition of the *Rancho La Brea* handbook by Dr. Chester Stock. There is also a new series of eight leaflets on California Indians and early California history, by Arthur Woodward.

This autumn the Museum Bookshop will offer two new Christmas cards reproducing an engraving and a woodcut by Albrecht Dürer, both recently acquired for the Museum's permanent art collection. Thus, with the three cards issued for 1948, there will be five of the Museum's Christmas cards. Members of the Museum Association will receive a small brochure describing these cards, and others from the Metropolitan. It is hoped that many members will secure their Christmas cards from the Bookshop.

Completion of Museum Facade—

The current 1949-50 Museum budget includes an item of $25,000 for partial completion of the Museum's facade. At their July meeting the Board of Governors approved in principle a sketch of the central portion of the facade. The Building Committee of the Board of Governors is requesting that the Board of Supervisors set a high priority on this project, in order that the County Mechanical Department may draft plans and specifications, and secure bids. In this way it is hoped that actual work on the facade may begin during this fiscal year.

After the new unit of the Museum had been built in 1929, completion of the facade was halted by the great Depression, which prevented carrying out the original plans for a neo-classic facade with costly marble facing and columns. The new design is more in keeping with the spirit and style of our time, and probably will utilize concrete.

—J.H.B. Jr.



FIG. 1—*California horse and rider of the 1840s-'50s*

LA MOCHILA

A Saddle Trapping of the Old West

The elaborately decorated saddle gear of the Mexican-Californians always caught the eye of European and American travelers to the west coast, in the early days when California was a province of Mexico. Born of a rich oriental heritage, the gaily embroidered and embossed leatherwork of the California horseman was exotic and eye-filling to the newcomers. The practice of embellishing all sorts of leatherwork with gold, silver, silk and hemp threads as well as the use of the fine red, green, blue and yellow Moroccan or Cordoban leather, spread from Persia and Africa into Spain with the Moors. Ancient examples of the thin, richly dyed leather ornamenting horse gear have been found in Coptic tombs.

From Europe the use of embroidered, tooled and pinked leather crossed the ocean into New Spain, whence it spread into the far outlands. Spanish settlers and explorers carried the art with them into what is now the southern part of the United States during the 16th century. Said Rodrigo Ranjel, private secretary to De Soto in 1539 when the Spanish explorers found the Indians using dyed buckskin:

> "Some things were done there as in Spain, which the Indians must have been taught by the followers of the lawyer Lucas Vazquez Ayllón; since they make hose and moccasins and leggings with ties of white leather, al-

though the leggings are black, and with fringes or edging of colored leather as they would have done in Spain. In the mosque or house of worship, of Talimeco, there were breast-plates like corselets and head-pieces made of rawhide, the hair stripped off; and also very good shields." (Vol. 2, p.101, *Narratives of the Career of Hernando de Soto,* 2 vols., New York, 1904.)

In the Southwest, the Apaches learned the trick of pinking leather and appliqué work in leather and cloth, while the Puebloan peoples took over the dyed leather leggings and shoes from the Mexicans and wear modified versions of them at the present time.

The Spaniard in the Americas was fond of embellishing all of his saddle trappings, knife, sword and gun sheaths as well as his leggings, shoes, trousers and jackets with heavy embroidery. He covered his cumbersome leather trunks and chests with elaborate floral designs. Although the Mexican artists in leather used other motifs, the favorite one was *la rosa de Castile.* But this is a somewhat ambiguous term since no two artists would agree as to the appearance of this flower. There was a nostalgic aura about the memory of the rose of Castile which caused the early Spanish explorers to call by this name every wild rose they found, all of which gave no end of confusion to the botanists and historians of later days.

From the beginning of the settlement of the Americas, the Spaniard was essentially a horseman. Although Cortes had relatively few horses with him in 1519, succeeding parties brought more and more animals until all of the better classes were mounted, and only the poorer Indians walked on foot. The first steeds were war horses, and their gear was primarily used for defense in battle.

One of the pieces of horse armament was the *coraza* or cuirass. This was formerly a term applying to a breastplate worn by a man, but it was also applied to the heavy leather chest and shoulder armor fashioned to cover the war horses. When the need for such armament passed, a modified form of it was retained as a protection to the animal when plunging through heavy brush and cactus. Gradually the *coraza* diminished in size until it finally became only a large, square piece of leather, usually heavily embossed and covered with thick embroidery. This was spread over the saddle and extended about half way down each side of the barrel of the horse's body.

Another article originally used by the soldiery was the *mochila.* This was a stout leather pouch in which the soldier carried his food and spare clothes.

In some manner the name *mochila* eventually came to be applied to a second squared piece of leather, smaller than the *coraza,* which fitted over the saddle and had a slit for the cantle and a smaller opening through which the head of the pommel protruded. It may be that in the beginning of this transition the *mochilas* (pouches) were sewed upon this covering, and later, when the pouches were eliminated, their name was retained. At the present time, the pouches or saddle bags carried by Mexican horsemen are called *cantinas.* They are usually sewed to a rather broad band of leather which, in turn, is fastened across the back of the horse at the rear of the saddle. Or they may be slung across the pommel. They are no longer fastened to that larger square of leather which, during the 19th century, itself took the name *mochila.*

In old California, the *mochila* (minus the pouches) was a popular bit of saddle gear and was worn along with the *coraza.* One writer describing a California saddle prior to 1850 said:

"Under the tree are placed one or two blankets called *sudaderos* (sweat cloths), doubled several times; the tree was covered with a broad sheet of leather having two openings, one for the head of the tree, the other for the cantle, the ends hanging down over both sides of the horse; this cover was called a *mochila,* and upon it was set another, somewhat larger, the *coraza.* This was handsomely set off with embroidery work called *talabarteria,* such as birds, flowers, or other tasty patterns; also through little holes pierced in it could be seen pieces of silk or cloth of various colors. This second cover was rather costly, as it was also bordered with silk or gold and silver thread, and it was not used on work-days. When traveling, over these two covers was placed a third also finely adorned, and at the sides in front were two pockets, *cubos,* of leather with covers, like holsters, the covers secured by a strap and buckle, *broche,* of the same material. These holsters served to carry food or anything else too large to be carried in the coat pocket." (Pp.385-6 in H. H. Bancroft, *Pastoral California,* San Francisco, 1888.)

This description is a trifle confusing. The writer implies that the band of leather carrying the pouches or "holsters," as he calls them, was as large as the *coraza* or the *mochila,* whereas in reality it was much smaller and narrower.

William Heath Davis, who wrote *Seventy Five Years in California* (San Francisco, 1929), said pp.64-5:



FIG. 2—*Embossed and embroidered leather* MOCHILA, *shown opened out flat. Made in 1855 for Wallace Woodworth of Los Angeles*

The Prudhomme Collection

> "The saddles were silver mounted, embroidered with gold and silver . . . the *mochila* covered the saddle, extended beyond the saddle to the shoulder of the horse in front, and back to flank, and downwards on either side half way between the rider's knee and foot," while the *coraza* was described as being a spread of finer leather than the *mochila,* elaborately stamped with ornamental devices. Davis, too, stated that the *coraza* covered the *mochila.*

Another author, John H. Fitzgerald, in an item *Adventures with Joaquin the Mountain Bandit,* published in the magazine "The Golden Era" (April 12th 1857), described Joaquin riding on "a large sized mule with a heavy silver mounted saddle, the leather cover of which was worked with antique devices in threads of silk, silver and gold." It will be noted that in all instances, descriptions of the early California *mochila* carry no reference to pouches being sewn upon it. Likewise the *mochila* is always described as being worn under the *coraza.*

It seems quite likely that as time went on, and the use of elaborate horse trappings began to vanish into the limbo of tradition, the *coraza* gradually disappeared. In the latter periods it served no useful function, and only added to the weight of the gear. By the middle of the 19th century only the *mochila* remained and it, too, was on the way out.

Very few of the old Mexican-Californian *mochilas* have survived the wear and tear of the years. One of these specimens is in the Museum. This particular *mochila* was made for Wallace Woodworth, a native of Ohio who, as a lad of eighteen, came to California with his father in 1850. After wandering about Oregon and California for five years, Wallace settled in Los Angeles in 1855 and entered the cattle business.

At that time the influence of Mexican culture was still strong in the pueblo. So when Wallace Woodworth, a rising young business man, found it necessary to outfit himself in a manner befitting



FIG. 3—*Detail of the* MOCHILA *in Fig. 2, showing embroidered flowers and a spandrel with the lion of Leon, Spain*

his station, he ordered a saddle and *mochila* to be made in the best traditional style. The *mochila* alone cost him $200. After his death his widow, the Señora Maria Antonia Perez de Woodworth, whom he had married in 1858, presented it to C. J. Prudhomme, who in turn gave it to the Museum (A.4811-246).

The *mochila* is 34½ inches wide and 48 inches long. It is handsomely embroidered in red, blue, yellow and green silk and hemp threads, with certain portions of the design done in gold threads. The embossed work is heavy and well tooled. The central figures at each corner are conventionalized lions, spouting streams of red, blue and gold flame, and are presumably emblematic of the old province of Leon in Spain.

These lions are cut out of heavy leather and appliquéd upon thin, uncolored pieces of stiff rawhide. The usual floral motifs are done in shades of light and dark blue silk and in yellow, green and gold threads. Fig. 2 illustrates the *mochila* spread out flat, while Fig. 3 indicates the details of the workmanship in the *leones* and the flowers. A side view of the saddle with, and without, the *mochila* is given in Fig. 4,a and b. To give the reader a better idea of how a *mochila* would appear upon the horse, Cal Peters, preparator of the History Division, has drawn a sketch (Fig. 1) which shows horse and rider as they would have appeared in the 1840s-'50s.

When the Americans came upon the scene in 1846, they brought with them their own Yankee accoutrements, but they also borrowed from the Californians as the need arose.

In 1860 the far-famed Pony Express rider, carrying his pouches of mail written on onion-skin paper, flashed across the horizon of the Far West, and after sixteen short months disappeared into oblivion, leaving only the imprint of his horse's hoofs upon the pages of frontier history, and innumerable stories of hair raising rides across the plains and through the mountains. It was the Pony Express rider that brought the *mochila* into the limelight. Since the distances to be covered and the pace to be maintained were so great, it was imperative that the equipment of the rider should be as light as possible. So the Mexican *mochila,* minus its elaborate embroidery but with locked pouches sewn upon it, was brought into use.

Glenn D. Bradley, in his book *The Pony Express* (Chicago, 1913) states pp.58-9:

> "As might be expected, the horse as well as the rider traveled very light. The combined weight of the saddle, bridle and saddle bags did not exceed thirteen pounds. The saddle-bag used by the pony rider for carrying mail was called a *mochila;* it had openings in the center so it would fit snugly over the horn and yet be removable without delay. The *mochila* had four pockets called *cantinas* in each of its corners—one in front and one behind each of the rider's legs. These *cantinas* held the mail. All were kept carefully locked, and three were opened en route only at military posts—Forts Kearney, Laramie, Bridger, Churchill and at Salt Lake City. The fourth pocket was for local or way mail-stations. Each local station-keeper had a key and could open it when necessary. It held a time card on which was kept a record of the arrival and departure at the various stations where it was opened. Only one *mochila* was used on a trip; it was transferred by the rider from one horse to another until the destination was reached."

A contemporary account of the Pony Express (Daily Evening Bulletin, San Francisco, April 20th 1860) said that the locked pouches were inscribed: "THROUGH LETTERS," "BETWEEN SAN FRANCISCO AND SALT LAKE CITY," "BETWEEN SALT LAKE AND ST. JOSEPH," and the fourth "TELEGRAMS AND WAY BILLS."

One of the original Pony Express riders, J. H. Keetley, who rode out of 'St. Joe' (Missouri) over the first 125 miles of the route, has left us a few addi-



FIG. 4, *a* and *b* — *Wallace Woodworth's tooled leather saddle with, and without, the* MOCHILA *of Figs. 2 and 3*

tional details concerning the *mochila* and its pouches:

> "We rode into the office and put on the mail, which consisted of four small leather sacks six by twelve inches, fastened onto a square macheir which was put over the saddle. The sacks were locked with little brass locks much like one sees today on dog collars, and the sacks were sewed onto the macheir, one in front and one behind each leg of the rider." (William Lightfoot Visscher, *The Pony Express,* pp.32-3—Chicago, 1908.)

Here Keetley distorts, in typical frontier fashion, a word foreign to his vocabulary. Someone told the young rider that the *mochila* was a "macheir," which was probably as close as the speaker could come to the Spanish pronunciation. Other spellings have been mochilla, mochia, mochya and machia! Fig. 5 is a representation of the Pony Express *mochila* and saddle, drawn by Cal Peters after a

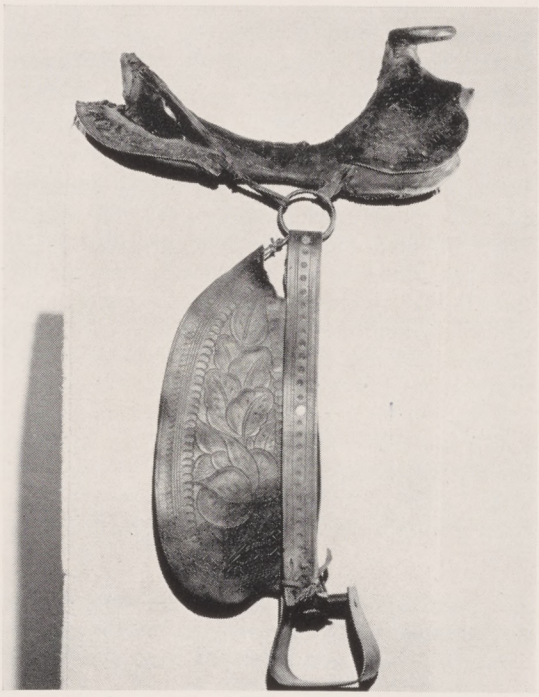




FIG. 6, *a* and *b* — *Above, a "Post-Gringo" saddle of tooled leather, from Telecate Ranch. Below, a "Mother Hubbard" saddle*

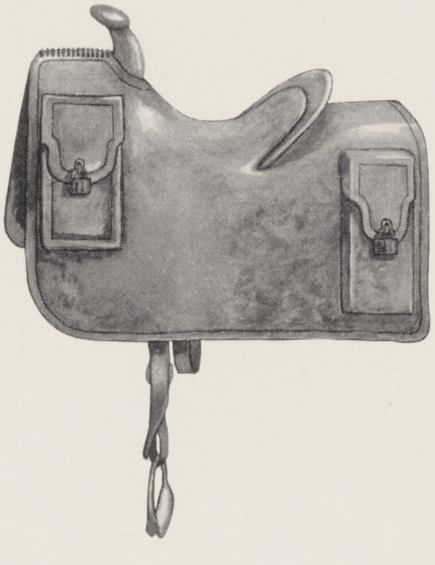


FIG. 5—*Pony Express saddle and* MOCHILA, *showing padlocked pouches for mail*

photograph of an original saddle in the Wells Fargo Bank Museum, San Francisco.

But the end of the *mochila* was not yet in sight, even with the passing of the Pony Express. Sometime in the 1880's or perhaps even earlier, some American saddlemaker decided to incorporate the *mochila,* minus the pouches, with the saddle proper. Thus a saddle was evolved which had a broad leather covering over the seat and extending down on both sides, sewed tightly to the tree. At first glance it looks like a removable *mochila,* but examination reveals the error. This covering was called a "Mother Hubbard" by the American cowboys,

who probably saw in it a likeness to the voluminous skirts worn by the frontier ranch woman of the day. These "Old Mother Hubbard" saddles were comfortable enough but in time they too disappeared, although now and then an occasional one may be seen in use by some old-timer who hates to part with such a tangible memento of the days of his youth (Fig. 6,b).

The *mochila* underwent still further modifications, diminishing in size and changing in form. The saddle in Fig. 6,a (now the property of M. S. Spalding, Telecate Ranch, Goleta, California) is one of these types. Here the leather skirts take the form of a conventionalized *mochila* which is incorporated as a fixed portion of the saddle and cannot be removed. It is supposed that this particular saddle was made in California sometime during the 1870's or possibly later.

Concerning this saddle Jo Mora, the famous illustrator of western saddle gear, said: "It is a P.G., 'Post-Gringo,' tho a hard one to peg as it is not made according to the style of the period. It could well be in the 1850's or '60's or '70's or '80's. I say this because the *tapaderos,* stirrup leathers and *rosaderos* belong to that period, extending even later. The upper works are purely bastard design. That is, they were evidently custom made to certain individual specifications. The covering of the tree is based on the style of the removable old-time Before-Gringo *mochila,* and the rear skirts in one big piece to resemble somewhat the old B.G. *anquera.* There might not be another saddle like it, as it is a 'personal' custom made model to certain specifications" (letter to the writer, March 14th 1947).

It would seem that the present-day saddles in their general construction, eliminating the swell forks and multitude of smaller details of construction, follow in a general way the old-time Mexican saddles insofar as the saddle skirts are concerned.

These skirts, we believe, are simply vestigial remnants of the ancient *coraza* and *mochila.* The upper skirt is smaller than the lower one, while the portion of leather immediately to the rear of the cantle is, as Mora pointed out, in all likeliness an exceedingly diminished *anquera* or rump-covering, such as was widely used in Mexico and California prior to the middle of the 19th century.

This *anquera* consisted of seven panels of leather, fringed at the lower extremities with iron jinglers. It too was a survival of horse armor from the 16th century and even earlier. Like the *coraza* it served to protect the animal from wounds in battle, or scars from the heavy chaparral. It began to go out as a military trapping in California in the 1770's but continued in use among civilian riders until after the 1850's. Actually, the present-day descendant of the *anquera* is probably the shortened form of the *anquerita* or "little anquera," which was in use in California and Mexico from the first two or three decades of the 19th century onward.

—ARTHUR WOODWARD

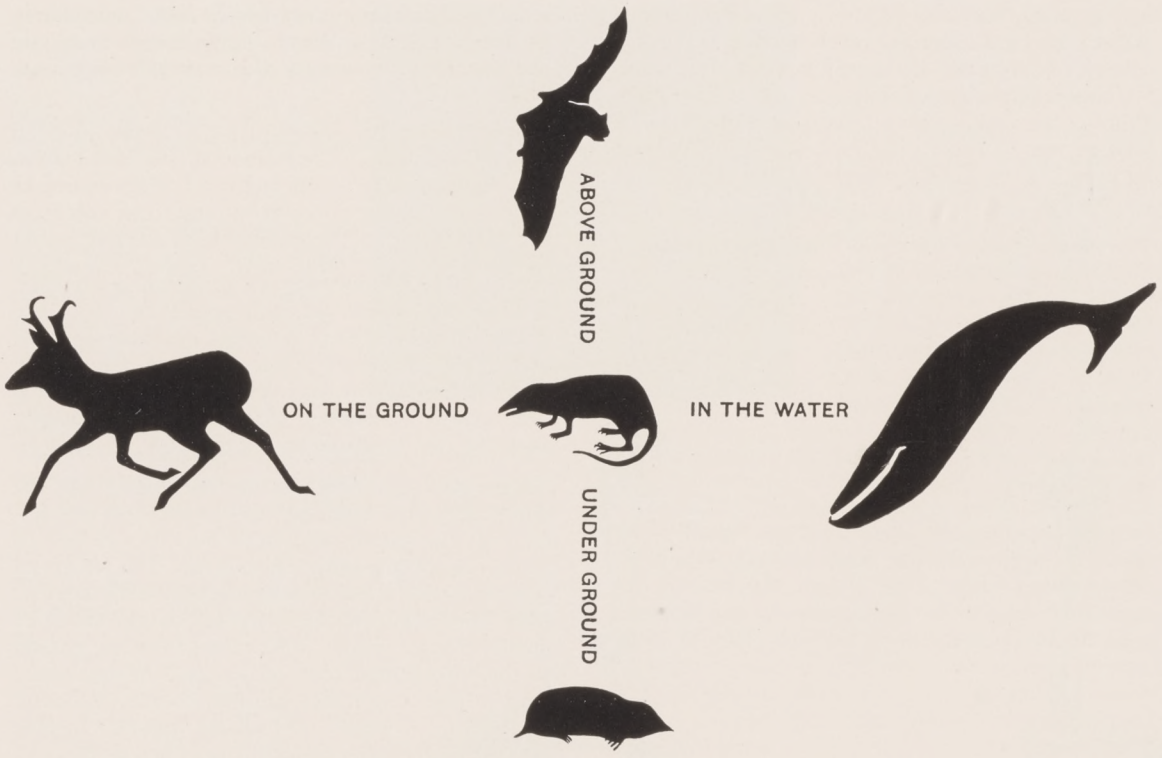


FIG. 1—*Diagram, "adaptive radiation" in mammals*

ADAPTATIONS

With construction work under way on the Museum's Hall of Evolving Life, it is pertinent to consider one of the important phases of the never-static process of living which will be represented in the finished hall—namely, the adaptation of animals to the conditions under which they live. On this subject, which is one with many ramifications, attention is focused on the back-boned animals, especially the mammals.

The term "adaptation" (L. *ad,* to; *apto,* fit) as here used, refers to the fitness of the animal in its structure and functions for life in a particular environment. It is obvious that an animal could not long exist if its structure and functions were not fitted to the surroundings in which it found itself. Most fishes, for example, adapted as they are by the arrangement of capillaries in the gills, to remove oxygen from water, but not from air, would soon perish if the body of water in which they lived should dry up. A few, however, particularly the group known as the "lungfish," have accessory organs through which they can breathe air, thus enabling them to survive periods of drought. Though only a few fish of this type exist today, a multitude of such forms are known from very ancient fossil deposits, and the beginning of vertebrate life on land has been traced back to this adaptation.

Turning now to those vertebrate animals which are entirely air breathing, we find them occupying a variety of environments. Basically these environments are four in number: the surface of the ground, underground, above ground, and in the water. Today the mammals, as the dominant vertebrate group, are found in all of these situations. A hundred to a hundred and fifty million years ago, while the mammals were still an insignificant group, the reptiles enjoyed the same wide distribution. This tendency of one great group of animals to become adapted to a wide range of environments is referred to as "adaptive radiation," and may be

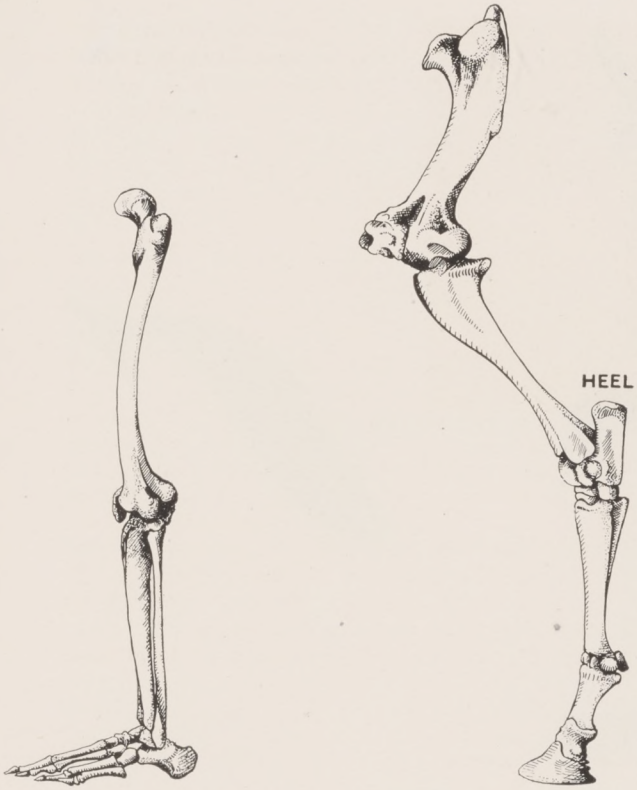


FIG. 3—*Legs of man and horse. Note particularly the difference in position of the horse's heel, and consequent greater length of the leg below the knee*

FIG. 2 (below)—*Fore leg of a mole. In life, only the large clawed "hand" protrudes outside the body contour*

graphically demonstrated by the diagram (Fig. 1) drawn up for the mammals.

The original mammalian stock from which the diverse forms of today have emerged is conceived of as being a rather short-legged, five-toed creature that trotted about on all fours. Its teeth were small, with simple points, probably indicating that it was an insect eater. Fossil forms of early mammals suggest that this conception is not far from fact. From a generalized structure such as this could be derived any of the special anatomical adaptations which exist today.

Around the four main lines of radiation, mammals are adapted to numerous conditions, oftentimes overlapping from one line to another, as for example, those creatures which forage for food on the surface of the ground but go under or above ground to seek protection from enemies. There are, however, certain definite correlations to be found between structural features and specific types of environment. The underground dweller, for instance, must, and does have a compact body, with short legs and claws for digging. The mole is the most markedly fossorial mammal; the front legs and feet are so highly specialized for digging (the bones



short and heavy, the claws greatly enlarged into heavy nails—see Fig. 2) that they would prove very clumsy instruments for progressing on land. As a matter of fact, the mole spends its entire life under ground. Gophers, however, occasionally come out of their burrows. Their claws are not unduly long, and the short legs can be used in walking. The greatly elongated front teeth have largely assumed the function of digging (p. 13 *above*).

Long-legged creatures, on the other hand, like the horse, deer and antelope, live entirely on the surface of the ground and have no other means of protection from enemies but to run. The structural adaptations of these animals are markedly specialized. The long, running stride is brought about by greatly elongated foot bones raised from the ground so that the animal runs on its toes. As you and I tend to rise to our toes in order to run, the horse has heel (and wrist) well off the ground. In fact, emulating the ballet dancer, it has risen to the very tips of its toes (Fig. 3). The distance from ground to heel in an average, light weight horse of Arabian type is 20 inches. The weight of the lower leg is considerably lessened by the absence of all bones which do not function to move the leg directly forward and backward; the small outer shin bone has almost disappeared, and foot bones are reduced to one (in antelope and deer there are two, fused into one). Upper leg bones are sturdily built, providing broad areas for attachment of powerful propelling muscles. Compensating for the lengthened leg and consequent raising of the body from the ground, the neck and head are elongated so that the horse can bend to reach the grass on which it feeds.

Of those mammals which live above ground, only one, the bat, has acquired the power of true flight. Three times in the long history of vertebrate development, nature has devised a flying wing: in the pterosaurs among the ancient reptiles, in the bats among mammals, and in practically the entire class of birds. In pterosaurs and bats the wing is a membrane stretched along the side of the body and out onto the forearm and hand bones; elongation of one or several bones accompanies this adaptation (Fig. 4,a). In birds the skeletal parts of the wing are shortened, and the wing expanse is composed entirely

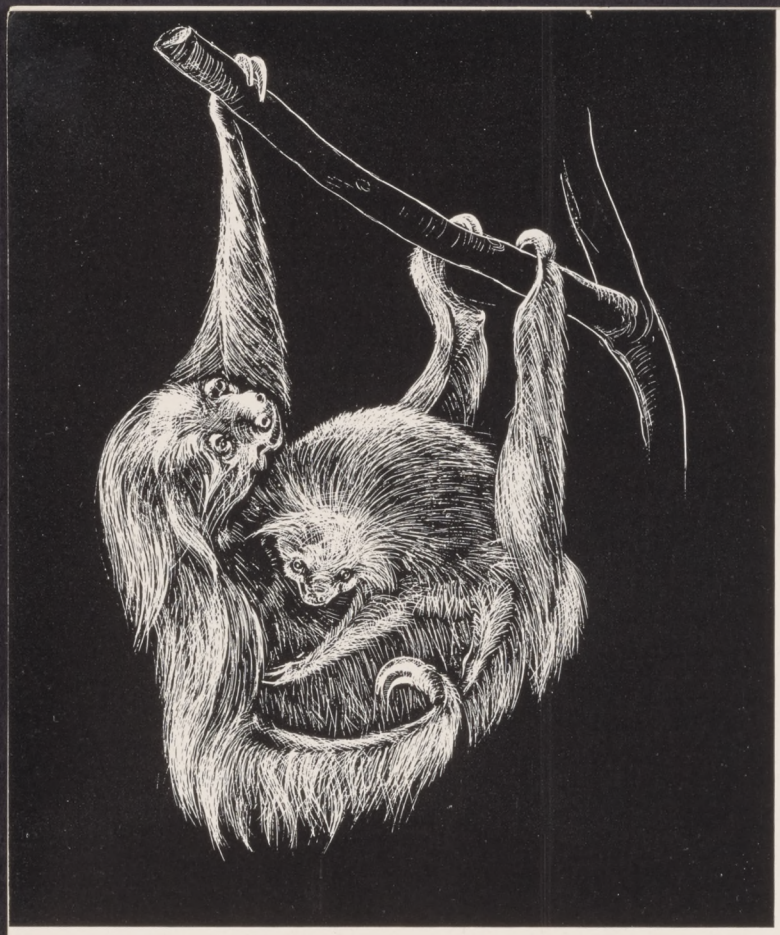
of feathers (Fig. 4,b). A few tree-dwelling creatures have the ability to leap and then soar from one branch to another by means of a short fold of skin stretched between fore and hind limbs, but these animals are not capable of sustained flight. Other arboreal adaptations range from the well known group of monkeys which can leap from branch to branch by the use of long arms and prehensile fingers or tail, to the many creatures which cling by means of claws. The extreme among clawed climbers is seen in the tree sloth which hangs in inverted position, grasping the tree limb with greatly recurved claws which would be a detriment to the animal were it forced to progress on the ground, or even upright within the trees.



Those mammals which have taken to the water tend, in their extreme form, to resemble fish. The body in the whales and dolphins, for example, is fusiform, the fore part bearing the greatest weight, with front, fin-like appendages located immediately back of the head, the neck being greatly shortened (Fig. 5). Hind limbs are lacking except for small rudiments of the pelvic bones. The long tail, ending in large, fleshy, horizontal blades, or flukes, is the chief organ of propulsion, as the front limbs are used more to maintain balance. Whales, being true mammals, take oxygen through lungs, not gills, and it is therefore necessary for them to come to the surface to breathe. The structure of other swimming mammals, while to some

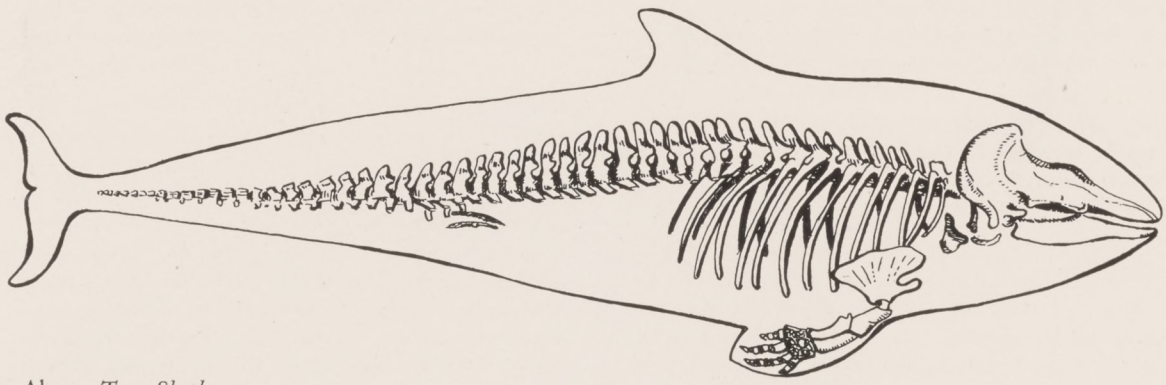
FIG. 4—*Wings of bat and bird. Wing surface is membranous in the bat, composed of feathers in the bird*





extent "streamlined," is less highly specialized for aquatic life than in the whales. In seals and sea-lions, both pairs of limbs are present and are flipper-like. The hind ones assume the function of propellers in the seals, the front ones in the sea-lion. The lateral position of the hind flippers in the sea-lions makes it possible for these animals to progress on land in a clumsy fashion. In the seals, however, the hind limbs are well posterior in position, simulating a bifurcated tail; consequently, although seals often sun themselves on rocks, they are less at home on land than are their sea-lion cousins. Still other mammalian swimmers have a webbed foot which can still function adequately on land.

An important part of every mammal's adjustment to its environment is the structure of the teeth. The carnivore must have sharp, shearing and biting teeth, while the plant-eater needs a grinding type of dental equipment. The cats, particularly the extinct Sabertooth Cat, show the most extreme development of flesh-eating teeth, whereas the horse, which is a grass-eater, is a noteworthy example of the extreme in herbivorous dentition. The cheek teeth in the horse are in the form of block-like columns composed of intricate folds of enamel within a matrix of dentine and cement. In the young adult the teeth are three inches or more in length, though only a small portion of the tooth protrudes. As the crown is worn down with chewing, the remainder of the column gradually comes into place in the jaw. Between the two extremes of the cat and the horse, are all degrees of tooth adaptation, until a mid-point is reached, as in the pig, where the animal can eat many of the softer plants, as well as the flesh of the smaller animals. Tooth structure does not necessarily parallel body structures; carnivores may be adapted to all environments, and the same is true of herbivores. However, the type of



Above, *Tree Sloths*

Fig. 5—Dolphin skeleton, with outline of body contour. Note small remnant of pelvis. Unlike the tail fin of fish, the flukes in the whale group bear no skeletal structure

plant eaten is associated with bodily structure to some extent. For instance, the grass-eaters, on the whole, are runners, for grass lands are open lands where speed to escape enemies is essential for survival. Many fruit-eaters, of course, are climbers, and one, the fruit-eating bat, has attained true flight.

Most of the structural adaptations in mammals are reflected in the skeleton. The Museum is fortunate in possessing one of the finest collections of skeletons in the country, including over 200 mounted specimens. From these a select few will be exhibited to demonstrate adaptive radiation within the mammalian group today.

—HILDEGARDE HOWARD

Illustrations by Louise Heidt

THE CALIFORNIA TURKEY

Sportsmen in California have been following with interest the attempts made by the California Division of Fish and Game to introduce wild turkeys into California. The first introductions were made some fifteen years ago in Orange County (Santiago Canyon) and in Monterey County near King City. Ten birds were liberated at the former site, forty-two at the latter. Owing either to choice of site or to the stock selected, these "plants" proved unsuccessful. More recent introductions, however, in the interior of the San Simeon Ranch and in the San Bernardino mountains, are doing well, and the increase in the flocks encourages the hope that these great game birds may eventually become established here.

Historically speaking, the establishment of wild turkeys in California will add a new bird to the state's avifauna, for none is known in the wild today farther west than Arizona. Geologically speaking, however, California is well acquainted with turkeys. Six separate fossil localities, from Shasta County in the north to Orange County in the south, reveal their presence here toward the end of the Pleistocene epoch, or Ice Age.

Rancho La Brea, the great storehouse of information concerning animal life of the late Pleistocene, is our prime source of knowledge pertaining to these birds. Thousands of bones of turkeys were recovered in this 23-acre area, now known as Hancock Park. Although in no case were the bones of a single bird found articulated, or even in place together, it has been possible, by counting the best represented skeletal elements, to estimate that approximately 750 individual turkeys met their death in the tar.

This California species, *Parapavo californicus,* is now extinct. There is no indication that it was even ancestral to the living North American Wild Turkey, *Meleagris gallopavo.* On the contrary, fossil records for eastern and middle western United States indicate that Meleagris was already present in the Pleistocene, existing contemporaneously with Parapavo of the far west. Parapavo shows closer relationship to the living Central American Ocellated Turkey, *Agriocharis ocellatus,* than it does to the North American Meleagris. Actually, in many characters it lies between the two living birds, but always with a tendency to-

ward closer resemblance to the Central American form. We may, therefore, be allowed to postulate that the California Turkey was a more beautiful bird than the present Wild Turkey of the United States. Agriocharis, which it resembles in skeletal characters, is an outstandingly handsome bird with bright metallic spots—or "ocellations"—on the tail, similar to the markings of the peacock. The colors throughout are more vivid than in Meleagris, the bare neck and head, for example, being a deep blue, covered with bright orange warts. The wattle, too, is blue, tipped in yellow. Even though the Ocellated Turkey is considerably smaller than our living North American bird, it is much more spectacular. The extinct turkey was somewhat larger than the Central American bird, though not equal to Meleagris in size. The spur cores on the legs of the males were, however, longer, more pointed and more sturdily built than in the latter species, suggesting that the tom of Parapavo was a formidable fighter.

The California Turkey was undoubtedly a resident of the Los Angeles area and bred in the immediate vicinity of Rancho La Brea, which in Pleistocene time offered the covering of brush and trees suitable to birds of this kind. Hundreds of bones of very young turkeys, representing at least 275 individuals, were recovered in the fossil excavations. Calculated on the basis of rate of growth in modern turkeys, the smallest bones, which were of very spongy texture, were probably of newly hatched chicks—certainly not over a week old. Young turkeys are extremely precocious; scarcely are they dry after hatching, than they are running about away from the nest. It is not surprising, therefore, that many young Parapavos were caught in the tar. In fact it is remarkable that broods could be raised at all in close proximity to these dangerous traps. Presumably a high birth rate compensated for the hazard.

The turkey bones, both young and adult, were found in eleven separate Pleistocene deposits at Rancho La Brea. Asphalt deposits similar to those at the Rancho, and of the same age, are found at Carpinteria on the coast to the north, and at McKittrick in the interior. Parapavo occurred abundantly at Carpinteria where indications are that in the Pleistocene the area was even more wooded than at Rancho La Brea. At McKittrick, on the contrary, the deposits occurred in open country, and there are no turkeys represented. Other Ice Age records of turkey in California are based on fragments of one or a very few specimens. Some of these, which were discovered many years ago, have been assigned to Meleagris rather than to Parapavo. But it is likely that were the specimens to be reviewed in the light of detailed knowledge now available concerning Parapavo, they would be reclassified and placed with the California Turkey.

Abundant as Parapavo once was in California, there is only one record of its occurrence elsewhere than in this area. A single specimen has been reported in Texas from the latter part of the Pliocene epoch (immediately preceding the Pleistocene). *Meleagris gallopavo,* too, has only one record for the Pliocene—in Kansas. But in the Pleistocene and Recent it has had a wide distribution, extending from the east coast to Arizona, and from Canada well into Mexico.

It was this species which the European explorers and colonists encountered in America, not Parapavo. Entering the interior of Mexico early in the sixteenth century, the Spanish found the turkey already under domestication by the Aztecs. A short description of the bird written in 1526 tallies accurately with the Mexican race of *Meleagris gallopavo.* It was undoubtedly this race which was first introduced into Europe via Spain, not later than 1530. Before the end of the 16th century it had become a popular and plentiful domestic fowl, and was a well known feast-day bird with the English some forty years before the "First Thanksgiving."

There is some evidence that the California Turkey lived into the geologically Recent time and was seen by the aboriginal Indians. A few bones of Parapavo have been recovered from the one pit at Rancho La Brea which contained human remains. These human remains were of Indian type, and only a few of the associated animal bones represented Ice Age forms. Consequently the deposit is considered to be of early Recent age, the tar trap having been active at a considerably later time than the other accumulations in the area. No record of large game birds has carried over in the folklore of the California Indians. Nor did any of the early Spanish visitors to California refer to their presence. The extinction of California's greatest game bird cannot, therefore, be attributed to the predations of civilized man. It must be related, rather, to natural conditions, such as the climatic change—the gradually increasing aridity—which eventually brought about the disappearance of brush and trees from the valleys in which the turkeys made their home.

—HILDEGARDE HOWARD

THE GENIUS OF LEONARDO

An address by Dr. William R. Valentiner, at the evening reception to open the LEONARDO DA VINCI *Exhibition, on June 2nd 1949*

One hesitates to approach the problem of Leonardo, the most difficult in art history, as he would the scaling of a huge mountain. For, if we would understand such a universal genius we must ourselves possess universal knowledge, knowledge in all fields of human endeavor; and who possesses it in this day of specialization, when all branches of learning are divided and when science and art are separated from one another? When do we find even two of the many attributes of Leonardo united in one human being—for instance, the naturalist and the creative painter? Higher mathematics, which Leonardo so loved, and art seldom go together today, and it was probably not otherwise in earlier times. His nature was rich in such pairs of opposites. For example, he is described as possessing extraordinary physical strength and beauty: it was an easy matter for him to twist a bronze door knocker out of shape or to break a horseshoe in two. Yet the characteristics of his art are refinement and delicacy, the expression of a highly sensitive nervous system, which does not usually accompany robust physical vigor. We remember that Botticelli, who is in many respects related to Leonardo, is described as a frail and hyper-nervous individual. We know that Watteau, that master of delicate, subtle beauty, was in outward appearance ugly and misshapen.

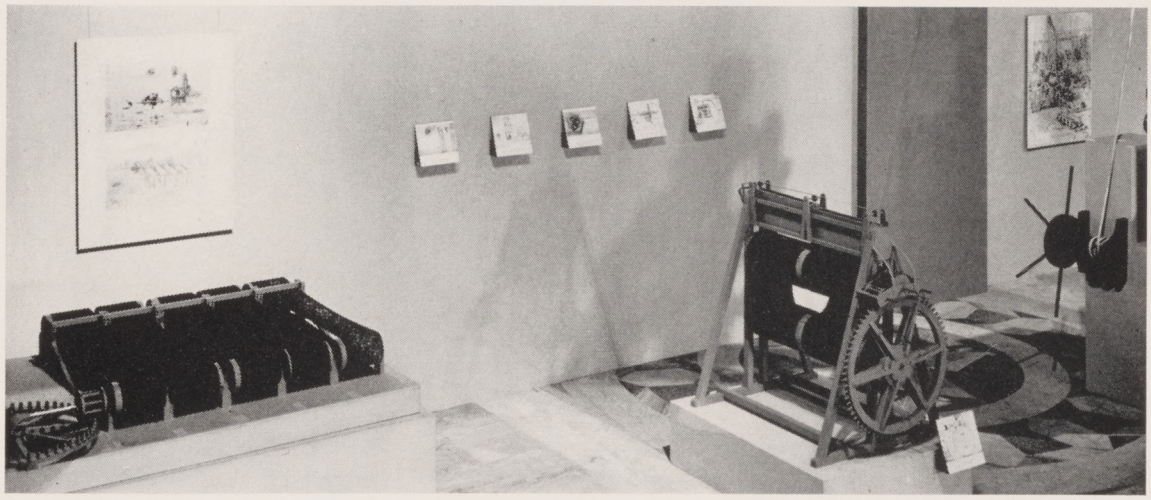
Finally, still another characteristic: Leonardo was left-handed, and it will appear strange to us that the most sensitive outlines ever created by a draftsman, the finest shadings from light to dark ever attained by a painter, were executed by a left-handed person.

Many of Leonardo's biographers consider him superhuman, almost godlike, but there are others who believe that the demoniac trend in his nature was greater than the godly because he occupied himself so much with instruments of destruction and with the grotesque deformities of nature. We will understand him better if we take him as a human being with the obvious weaknesses of genius, and with the dual nature characteristic of great men—perhaps of all men—in which one side is directed toward destruction, the other toward spirituality.

Leonardo hated human slaughter. Even the killing of animals he felt to be a crime, and for this reason he was a vegetarian; but above all he deplored the destruction of so incomparable a creation as the human body. Stirred by the fineness of the forms of nature, he once wrote, on an anatomical drawing, a revealing statement which summed up his view of life and ethics:

Leonardo's Inventions: Models of nap-raising machines

Photograph by Francis O'Neill





Leonardo da Vinci: BEATRICE D'ESTE, DUCHESS OF MILAN.
Panel 18¾ x 13½ inches (Cat. No. 17)

Private Collection, New York City

"And thou, man, who by these my labors dost look upon the marvelous works of nature, if thou judgest it to be an atrocious act to destroy the same, reflect that it is an infinitely more atrocious act to take away the life of man."

Yet we know that Leonardo devised the most devastating war machinery, and that of his own free will he accompanied Cesare Borgia, the most cruel and treacherous of all Renaissance leaders, on his military campaigns to subjugate Italy. We see also that in one of his most famous works, the *Battle of Anghiari,* he expressed himself with the tremendous fervor which could only come from a man who was re-experiencing with some sort of pleasure the horrible war action he had seen. This depiction of "bestial frenzy," as Leonardo himself designated war, is like a nightmare, a wild entanglement of riders and horses from which escape is no longer possible. Not only are the human beings tearing each other to pieces, but the horses themselves, with a terrible ferocity of contact, have locked teeth with one another.

But while portraying life in the most intense and agitated moments of battle, Leonardo was at the same time representing the enduring and eternal in his portrait of *Mona Lisa.* There the conflict of men in the strife for temporal conquest, here the calm and self-sufficiency of women, who represent that which is imperishable, inexhaustible, in nature itself. We know that Mona Lisa, the wife of a certain Francesco del Gioconda, was only twenty-four when Leonardo painted her. She looks older, of indefinable age, for the painting does not have the character of an actual portrait. It is consciously lifted into the universal, and in a certain sense expressed the deepest creed of the artist. No one can fail to see the connection with nature, the actual melting of the figure into the cosmic. Behind her the view opens wide to unreal heights of imaginative forms, making an impression of the endlessness of space. Bridges swing themselves over valleys; water rushes over rocks; but these regions are as uninhabited as a distant star.

The longer we contemplate the figure, the less individual and the more universal she appears, the more is she a part of nature, yes, even her expression does not seem to be like anything we experience in the world around us or find in ourselves, but that of another consciousness, apart from us. Great speculation has been occasioned by that enigmatic expression, whether it is purity or insinuation, but it has nothing in common with the laws of human morals; it is neither pure nor impure but, like nature, mirrors that which we bring to it. Is it then a lack in the creator if we find our own small ideas in his creation? As little is the fault of the mountain when human faces are discovered in its outlines, as little is the quiet sea to blame if frightful things are reflected in it.

Like the greatest poets, Leonardo arrived finally, in his search for primal origins, at the representation of woman, who stands nearest to nature, her rhythm vibrating more strongly with it than man's, who opposes nature with his own creative ideas. Like Dante's Beatrice, whom he finds again in the highest circle of Paradise, she is freed of sensousness. As Faust went down to the "Mothers" in the earth, as to the original fount of being, as the "eternal feminine drew him upward" to spiritual heights, so Mona Lisa seems to be connected with both earth and heaven, the deep browns uniting her with the terrestrial, the delicate blue with the oldest rocks of the Alps and with the atmosphere. As in all his creations, the miracle lies in the uniting of actual observation with the belief in the significance of the spiritual power of nature. He expressed it himself in his notebooks, in a few sentences which crystallize the philosophy of his life, words which are curiously reminiscent of some well known poems of the old Goethe:

"Behold now the hope and desire to go back to our own nameless country and to return to our former state, how like is it to the moth with the light! And the man who with perpetual longing ever looks forward with joy to each new spring and each new summer, and to the months and the new years, dreaming that the things he longs for are too slow in coming, does not perceive that he is longing for his own destruction. But this longing is the quintessense and spirit of the elements which, finding themselves imprisoned within the life of the human body, desire continually to return to their source. And I would have you know that this very same longing is that quintessence inherent in nature, and that man is a pattern of the world!"

But is man—let me interpolate a question to Leonardo—is man really the pattern of the universe, the prototype of the primal laws of nature, the sum of its spiritual elements? Surely only the man who seems to us, in those extreme examples, like



Leonardo da Vinci: Studies for the ADORATION OF THE KINGS, *in the Uffizi. About 1481. Pen and ink, 11 x 7¼ inches (Cat. No. 77)*

Wallraf-Richartz Museum, Cologne

Leonardo himself, a perfect type of the universal species, who so seldom arises that since the time of Leonardo we have perhaps met him only once in a man who was born two-hundred years ago, Goethe. Apart from such rare types, what, really, is man? Shall we believe Nietsche when he says that he is only a means for creating this most highly developed type, "material for experiment, an enormous surplus of illbred ones, a field of wreckage"? But in spirits like Leonardo mankind unconsciously creates peaks which crown the labor of centuries, monuments of the creative spirit, to whom our distant glance must be lifted until a new peak is attained.

THE LEONARDO DA VINCI EXHIBITION

The Leonardo da Vinci exhibition, held at the Los Angeles County Museum from June 3 through July 17, was organized as a comprehensive exhibition—the first ever held in America—of Leonardo's art and science. It was the second effort[1] in a decade to bring together the artistic and scientific achievements of the great Renaissance master in order to show the scope of his interests, parallel development of his painting and technical discoveries, and their innovative and influential character. The separation or divorcement of art and science, a schism symptomatic of modern times, was something unknown in Leonardo's time; thus it was not unusual that the exhibition was so arranged that his mechanical designs were the first objects seen. The exhibition did much to reveal the basic similarity and close relationship between all techniques, practical and artistic, restoring something of the age-old utilitarian and social function of the arts, as they were practised from the time of the ancients, when slight distinction existed between art and craft.

If to the disclosure of Leonardo's grasp of practical sciences is added his contributions to painting and and sculpture, to military defense, architecture, aerology, his knowledge of scenic design, his skill as a musician and *improvisatore,* a picture is created of an ability such as was known solely to the Renaissance and reappeared but once again in Europe, and that only in the juncture of art and science, not practical skill, in the figure of the universal Goethe.

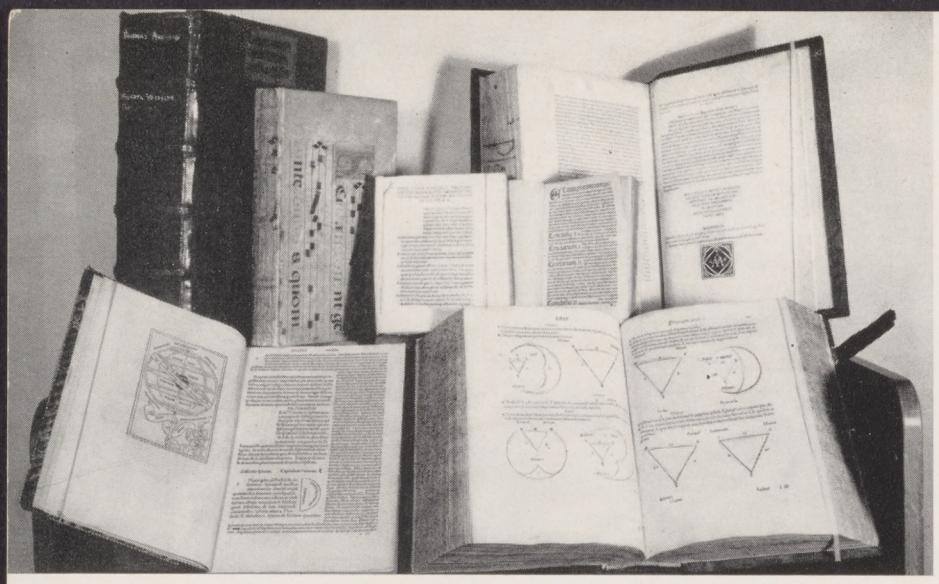
Introduced to the sixty-six models of machines constructed after Leonardo's original designs, the spectator would have had no more reason to expect three galleries of Leonardo's art and influence than he would at an exhibition of applied arts and science or an inventor's show. But the tour of machines ranging from lens grinder, printing press, coin stamper, self-driven car, flyer spindle, variable speed drive, two-level highways, military fort, rotating and two-level bridges, to machine gun, steam gun, shrapnel, aerial bomb, excavator, air conditioner, flying machine, parachute and helicopter, not to mention cartography and examples of anatomical and botanical study, was immediately followed by two rooms of reproductions[2] which presented a complete picture of the most consummate draughtsman and artist of all time.

If we imagine a Vesalius, a de Lesseps, a Clausewitz, an Edison or a Ford who could paint the *Virgin of the Rocks,* the *Mona Lisa* and the *Last Supper,* we begin to penetrate somewhat into the mind which rivalled the Greeks in its bold investigation of nature, and surpassed the Romans in its practical constructional genius, and make the transition from anatomical investigation, canalization, fortification, projection machine and self-driven car to sweet Madonnas playing with children, and studies of exquisitely perfect drapery.

Through the photographic replicas in the first gallery showing the development of Leonardo's art in his first Florentine period (1452-1481) could be traced studies and details for finished and unfinished works, proceeding from his first landscape drawing and the transported angel painted in Verrocchio's *Baptism of Christ* through portraits, allegories, Madonnas, horses and animals, and culminating in the great, uncompleted *Adoration of the Kings,* left behind when he went to Milan in 1481. In this work, his closest rival, Botticelli, as well as Quattrocento painting, were equally left

[1]The first, *Mostra di Leonardo da Vinci,* took place in 1939, in Milan, Italy.

[2]The reproductions consisted in the main of two types, photomurals in facsimile of Leonardo's paintings and facsimile reproductions of his drawings from his manuscripts published by the Reale Commissione Vinciana.



Leonardo's Sources of Learning
From the Elmer Belt Library
of Vinciana

behind as character and movement and the union of figures and background already presaged what was to be a century later, in the age of the dawning Baroque.

In the second room of reproductions representing his accomplishments throughout his long sojourn in Milan (1482-1499) and the fruits of his second Florentine period (1500-1505), were hung around the major paintings their preparatory sketches and studies and related works; his chief caricatures; allegorical drawings, and a great number of horse studies, in nearly all cases relating to the two equestrian monuments, Sforza and Trivulzio. A small case contained five 16th century bronze horses cast after Leonardo's models, one, sometimes attributed to the master himself, a flayed or stripped horse having already in that period been reproduced in woodcut for a book on equine anatomy.

The handful of completed (in varying degree), world famous masterpieces, shown in photomurals which punctuated the walls like milestones among the drawings, were, with the exception of the *Battle of Anghiari* and the *Mona Lisa,* religious subjects—one, the most famous religious picture ever painted, the *Last Supper* from Santa Maria delle Grazie in Milan. Yet here we come upon one of the striking paradoxes in Leonardo's nature, which is judged baffling and contradictory by all. For, consummate artist of religious works, of Madonnas the most adored until Raphael, his outlook was scarcely orthodox or even Christian,[3] as we know from Vasari's alteration of his first *Life* (1550) of Leonardo, in which this fact was outrightly stated, only to be later withdrawn for the second edition of 1568. In Leonardo, then, we have perhaps the first Italian artist who, already free and intellectual in his outlook, continued to paint traditional religious themes with considerable symbolism; later, sacred subjects were all but overwhelmed and lost, as in the sumptuous scenes of the worldly Venetians, such as Veronese, while in the rebellious, unacademic Caravaggio the realism was so strong as to exclude all feeling of devotionality. It was precisely the aim of the Counter-Reformation, which got under way twenty years after Leonardo's death, to restore to the artists strong religious conviction and expression.

The third gallery brought together over seventy paintings and twenty drawings (nine by Leonardo himself), devoted to showing works close to him, vestiges of him in his pupils and followers, as well as his widespread influence, an influence only rivalled by Michelangelo. Here again we find the paradoxical attaching to Leonardo. For he who taught the necessity of observing, striving and competing with nature, became himself the model, instead of nature, imitated, copied, and drawn upon. For linear perspective and precision of contour, Leonardo substituted aerial or atmospheric perspective and meltingness or dissolution of outline through *sfumato* or gradation of shadow. He created the plasticity of volume and depth. By the inclusion of shadow into painting he gave an enlargement to Florentine art equal to that previously brought about by perspective; it had been the one element lacking for complete naturalism. Man was no longer isolated in the light but united with his environment through enveloping shadow. In addition, his innovations in compositions, the three-quarter portrait with hands crossed, as in the *Mona Lisa,* the representation of Christ and S. John as infants together,[4] in the *Virgin of the Rocks,* the complex pattern of the *Virgin and Child with S. Anne,* the dramatic types and symmetry of the *Last Supper,* the gallery of Madonna types, and the *Leda,*[5] to name but few examples, were all so unique

[3]For an interpretation of Leonardo as humanistic theosophist, see Paul Vulliaud, *La Pensée Esoterique de Léonard de Vinci* (Paris, 1900).

[4]One of the motifs much exaggerated by Leonardo's followers who represented the infants kissing; a similar "traduction," one is tempted to say, occurs in the nude copies of the *Mona Lisa.*

[5]The choice of the subject of Leda by Leonardo remains perplexing to scholars (see K. Clark, *Leonardo da Vinci,* p. 126). All accounts of the Leda story bespeak a connection between her and the Greek retributive divinity, Nemesis. Now, Nemesis, as the personification of conscience and fear of moral offence, was closely connected

as to impress themselves in numerous replicas and variations, not only in Italy, but in Spain, France and Flanders. It is most curious then to find in some 19th century English handbooks of painting references made to his "peculiar type of the Madonna," as well as to his "fantastic and impossible backgrounds, which detract from the charm of his work," and more specifically in connection with the *Virgin of the Rocks,* " . . . the master's fantastic vein is disagreeably prominent in the dismal, dark cavern, with stalactite forms . . . "

Significant as a means of identifying with the background of Leonardo and his times was the display, in the exhibition, of early books relating to him, drawn from the Elmer Belt Library of Vinciana in Los Angeles. Of those volumes which gave a clue to the workings of his mind, the writings of Aristotle ranked first; in that inquiring, classifying, scientific and factual mind was found the match to his own. Certain writers have discerned Neo-Platonic tendencies in Leonardo's thought, yet it is quite apparent that, in Panofsky's words, he "professed a philosophy diametrically the opposite of Neo-Platonism." Unlike the Neo-Platonists, he did not consider the soul as imprisoned by the body, but conversely, it was "the very spirit of the elements, which finds itself imprisoned by the soul . . . " Especially abhorrent to him were attitudes and conclusions not based on experience but conceived as abstract absolutes; to him observation and penetration of the forces of nature were all; knowledge of physical life was the goal and satisfaction of his career; the detailed specificness of his scientific studies accords disproportionately with the relatively small attention paid to the analysis of human character. Here he drew from traditional philosophy if for no other reason than that human nature was so well assimilated by him that it did not require the same consideration as the investigation of scientific phenomena. His temperament was sober, judicious, moralistic, above all, practical. Among his vast notes less than ten jests are recorded; but his prophecies, largely of doom and destruction, are abundant; when he writes of man's desire to return to his first state and longing for futurity as instances of unconscious destruction, he appears to be anticipating Schopenhauer's Will and Freud's death-drive. History apparently held little interest for him; the amatory union of the sexes he could scarcely countenance.

To gage the profound alteration or shift in values which occurred from Leonardo's age to that of the 19th century, it is only necessary to quote from Delacroix, one of the few creative art theorists of modern times: "It is far more important for the artist to approach more nearly to the ideal he bears within and which is his, than to grasp the fleeting ideal offered by Nature." Thus had transpired the complete reversal in art; what lay for Leonardo in the truth of the optical was removed by Delacroix to the inner vision, opening up a field for the transformation of nature which the Renaissance master had especially enjoined against. Leonardo had not foreseen the ultimate exhaustion of the imitation of nature, although in the finished luxuriance of his own works there was already imminent the hint of no further perfection or commensurate duplication.

—EBRIA FEINBLATT

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with *Aidos* or shame. It is quite probable that Leda and Zeus in some way represented shame, whether for their amour or for their parentage of Helen, the spur for the Trojan war. J. Harrison in *Themis,* p. 116, writes: "The heavenly swan woos Leda, and Nemesis in the form of a swan flies before the swan-god. When Aidos and Nemesis leave miserable mortals to their sins and sorrows, they do on their swan bodies once again and fly up to Olympus . . ." Thus, it is quite possible that Lomazzo's interpretation of Leda's downcast eyes as a sign of modesty, or shame, is essentially correct; her whole position indicates an element of reluctance. There are elements of confoundment between Nemesis and Leda, but the fact that the one or the other was blamed ultimately for the war with Troy may conceivably have some bearing upon Leonardo's interpretation of the story, in which the expression of pudency may well be uppermost.

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